



1

SEQUENCE LISTING

<110> OZAKI, YASUKO
KOISHIHARA, YASUO

<120> IMMUNOCHEMICAL ASSAY FOR ANTI-HM1.24 ANTIBODY

<130> 053466-0286

<140> 09/622,646

<141> 2000-08-21

<150> PCT/JP99/00885

<151> 1999-02-25

<150> JP 10-60613

<151> 1998-02-25

<160> 31

<170> PatentIn Ver. 3.5

<210> 1

<211> 399

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(396)

<220>

<223> Nucleotide sequence of extracellular domain
of soluble HM 1.24 antigenic protein

<400> 1

aac agc gag gcc tgc cgg gac ggc ctt cgg gca gtg atg gag tgt cgc	48
Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg	
1 5 10 15	

aat gtc acc cat ctc ctg caa caa gag ctg acc gag gcc cag aag ggc	96
Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly	
20 25 30	

ttt cag gat gtg gag gcc cag gcc gcc acc tgc aac cac act gtg atg	144
Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met	
35 40 45	

gcc cta atg gct tcc ctg gat gca gag aag gcc caa gga caa aag aaa	192
Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys	
50 55 60	

gtg gag gag ctt gag gga gag atc act aca tta aac cat aag ctt cag	240
Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln	
65 70 75 80	

gac gcg tct gca gag gtg gag cga ctg aga aga gaa aac cag gtc tta 288
 Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu
 85 90 95

agc gtg aga atc gcg gac aag aag tac tac ccc agc tcc cag gac tcc 336
 Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser
 100 105 110

agc tcc gct gcg gcg ccc cag ctg ctg att gtg ctg ctg ggc ctc agc 384
 Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser
 115 120 125

gct ctg ctg cag tga 399
 Ala Leu Leu Gln
 130

<210> 2

<211> 510

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Nucleotide
 sequence coding for a fusion protein comprising
 leader sequence, FLAG peptide and soluble HM 1.24
 antigenic protein

<220>

<221> CDS

<222> (12)..(494)

<400> 2

gaattccac c atg gga tgg agc tgt atc atc ctc ttc ttg gta gca aca 50
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr
 1 5 10

gct aca ggt gtc cac tcc gac tac aaa gac gat gac gat aaa ggt acc 98
 Ala Thr Gly Val His Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly Thr
 15 20 25

aac agc gag gcc tgc cgg gac ggc ctt cgg gca gtg atg gag tgt cgc 146
 Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg
 30 35 40 45

aat gtc acc cat ctc ctg caa caa gag ctg acc gag gcc cag aag ggc 194
 Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly
 50 55 60

ttt cag gat gtg gag gcc cag gcc gcc acc tgc aac cac act gtg atg 242
 Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met
 65 70 75

gcc cta atg gct tcc ctg gat gca gag aag gcc caa gga caa aag aaa 290
 Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys
 80 85 90

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gtg gag gag ctt gag gga gag atc act aca tta aac cat aag ctt cag 338
Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln
   95                      100                      105

gac gcg tct gca gag gtg gag cga ctg aga aga gaa aac cag gtc tta 386
Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu
110                      115                      120                      125

agc gtg aga atc gcg gac aag aag tac tac ccc agc tcc cag gac tcc 434
Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser
                      130                      135                      140

agc tcc gct gcg gcg ccc cag ctg ctg att gtg ctg ctg ggc ctc agc 482
Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser
                      145                      150                      155

gct ctg ctg cag tgagatccca ggatcc 510
Ala Leu Leu Gln
   160

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<210> 3
<211> 445
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: Nucleotide
      sequence coding for a fusion protein comprising HA
      peptide and soluble HM 1.24 antigenic protein

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<220>
<221> CDS
<222> (1)..(429)

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<400> 3
tac cca tac gac gtc cca gac tac gct ggt acc aac agc gag gcc tgc 48
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Thr Asn Ser Glu Ala Cys
   1                      5                      10                      15

cgg gac ggc ctt cgg gca gtg atg gag tgt cgc aat gtc acc cat ctc 96
Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg Asn Val Thr His Leu
                      20                      25                      30

ctg caa caa gag ctg acc gag gcc cag aag ggc ttt cag gat gtg gag 144
Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu
   35                      40                      45

gcc cag gcc gcc acc tgc aac cac act gtg atg gcc cta atg gct tcc 192
Ala Gln Ala Ala Thr Cys Asn His Thr Val Met Ala Leu Met Ala Ser
   50                      55                      60

ctg gat gca gag aag gcc caa gga caa aag aaa gtg gag gag ctt gag 240
Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys Val Glu Glu Leu Glu
   65                      70                      75                      80

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gga gag atc act aca tta aac cat aag ctt cag gac gcg tct gca gag      288
Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu
      85                      90                      95

gtg gag cga ctg aga aga gaa aac cag gtc tta agc gtg aga atc gcg      336
Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala
      100                      105                      110

gac aag aag tac tac ccc agc tcc cag gac tcc agc tcc gct gcg gcg      384
Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser Ser Ser Ala Ala Ala
      115                      120                      125

ccc cag ctg ctg att gtg ctg ctg ggc ctc agc gct ctg ctg cag      429
Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser Ala Leu Leu Gln
      130                      135                      140

tgagatccca ggatcc      445

<210> 4
<211> 387
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Nucleotide
      sequence coding for a fusion protein comprising HA
      peptide and C-terminal-lacking soluble HM 1.24
      antigenic protein

<220>
<221> CDS
<222> (1)..(378)

<400> 4
tac cca tac gac gtc cca gac tac gct ggt acc aac agc gag gcc tgc      48
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Thr Asn Ser Glu Ala Cys
      1                      5                      10                      15

cgg gac ggc ctt cgg gca gtg atg gag tgt cgc aat gtc acc cat ctc      96
Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg Asn Val Thr His Leu
      20                      25                      30

ctg caa caa gag ctg acc gag gcc cag aag ggc ttt cag gat gtg gag      144
Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu
      35                      40                      45

gcc cag gcc gcc acc tgc aac cac act gtg atg gcc cta atg gct tcc      192
Ala Gln Ala Ala Thr Cys Asn His Thr Val Met Ala Leu Met Ala Ser
      50                      55                      60

ctg gat gca gag aag gcc caa gga caa aag aaa gtg gag gag ctt gag      240
Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys Val Glu Glu Leu Glu
      65                      70                      75                      80

gga gag atc act aca tta aac cat aag ctt cag gac gcg tct gca gag      288
Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu
      85                      90                      95

```

gtg gag cga ctg aga aga gaa aac cag gtc tta agc gtg aga atc gcg 336
Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala
100 105 110

gac aag aag tac tac ccc agc tcc cag gac tcc agc tcc gct tgaggatcc 387
Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser Ser Ser Ala
115 120 125

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<210> 5
<211> 85
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Nucleotide
sequence coding for HA peptide

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<220>
<221> CDS
<222> (28) .. (54)
```

<400> 5
ctctggctcc caggtgcacg atgtgca tac cca tac gac gtc cca gac tac 51
Tyr Pro Tyr Asp Val Pro Asp Tyr
1 5

gct ggtacca aggttgaaat caaacgtacg gaat 85
Ala

```
<210> 6
<211> 535
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Nucleotide
sequence coding for CG M/HA-HM164

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<220>  
<221> CDS  
<222> (13) .. (453)
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<400> 6
agatctctca cc atg agg gtc ccc gct cag ctc ctg ggg ctc ctg ctg ctc 51
          Met Arg Val Pro Ala Gln Leu Leu Gly Leu Leu Leu Leu
              1              5              10
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tgg	ctc	cca	ggt	gca	cga	tgt	gca	tac	cca	tac	gac	gtc	cca	gac	tac	99
Trp	Leu	Pro	Gly	Ala	Arg	Cys	Ala	Tyr	Pro	Tyr	Asp	Val	Pro	Asp	Tyr	
	15					20					25					

gct ggt acc aac agc gag gcc tgc cgg gac ggc ctt cgg gca gtg atg 147
Ala Gly Thr Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met
30 35 40 45

gag tgt cgc aat gtc acc cat ctc ctg caa caa gag ctg acc gag gcc 195
Glu Cys Arg Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala
50 55 60

cag aag ggc ttt cag gat gtg gag gcc cag gcc gcc acc tgc aac cac 243
Gln Lys Gly Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His
65 70 75

act gtg atg gcc cta atg gct tcc ctg gat gca gag aag gcc caa gga 291
Thr Val Met Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly
80 85 90

caa aag aaa gtg gag gag ctt gag gga gag atc act aca tta aac cat 339
Gln Lys Lys Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His
95 100 105

aag ctt cag gac gcg tct gca gag gtg gag cga ctg aga aga gaa aac 387
Lys Leu Gln Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn
110 115 120 125

cag gtc tta agc gtg aga atc gcg gac aag aag tac tac ccc agc tcc 435
Gln Val Leu Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser
130 135 140

cag gac tcc agc tcc gct tgaggatcct atgggttacca actacctaga 483
Gln Asp Ser Ser Ser Ala
145

ctggattcgt gacaacatgc ggccgtgata tctacgtatg atcagcctcg ac 535

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<210> 7
<211> 20
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic primer

<400> 7
ggccgcatgt tgtcacgaat 20

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<210> 8
<211> 20
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic primer

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<400> 8
atcgccctgga gacgccatca                20
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<210> 9
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 9
 taaaggtacc aacagcgagg cctgccg 27

<210> 10
 <211> 28
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 10
 ctgctgcagt gagatcccag gatccata 28

<210> 11
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 11
 caggactcca gctccgcttg aggatcctat 30

<210> 12
 <211> 106
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic DNA
 comprising leader sequence and FLAG coding
 sequence

<400> 12
 aattcccacc atgggatgga gctgtatcat cctcttcttg gtagcaacag ctacaggtgt 60
 ccactccgac tacaaagacg atgacgataa aggtaccgcg gccgcg 106

<210> 13
 <211> 106
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic DNA
comprising leader sequence and FLAG coding
sequence

<400> 13

gatccgcggc cgcggtacct ttatcgtcat cgtctttgta gtcggagtgg acacctgtag 60
ctgttgctac caagaagagg atgatacagc tccatcccat ggtggg 106

<210> 14

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic DNA
coding for HA peptide

<400> 14

gtgcataccc atacgacgtc ccagactacg ctggtac 37

<210> 15

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic DNA
coding for HA peptide

<400> 15

cagcgtagtc tgggacgtcg tatgggtatg cacatc 36

<210> 16

<211> 1014

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (23)..(562)

<220>

<223> Nucleotide sequence coding for humam HM 1.24 antigenic
protein expressed on cell membrane

<400> 16

gaattcggca cgagggatct gg atg gca tct act tcg tat gac tat tgc aga 52
Met Ala Ser Thr Ser Tyr Asp Tyr Cys Arg
1 5 10

gtg ccc atg gaa gac ggg gat aag cgc tgt aag ctt ctg ctg ggg ata 100
Val Pro Met Glu Asp Gly Asp Lys Arg Cys Lys Leu Leu Leu Gly Ile
15 20 25

gga att ctg gtg ctc ctg atc atc gtg att ctg ggg gtg ccc ttg att 148
 Gly Ile Leu Val Leu Leu Ile Ile Val Ile Leu Gly Val Pro Leu Ile
 30 35 40

atc ttc acc atc aag gcc aac agc gag gcc tgc cgg gac ggc ctt cgg 196
 Ile Phe Thr Ile Lys Ala Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg
 45 50 55

gca gtg atg gag tgt cgc aat gtc acc cat ctc ctg caa caa gag ctg 244
 Ala Val Met Glu Cys Arg Asn Val Thr His Leu Leu Gln Gln Glu Leu
 60 65 70

acc gag gcc cag aag ggc ttt cag gat gtg gag gcc cag gcc gcc acc 292
 Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu Ala Gln Ala Ala Thr
 75 80 85 90

tgc aac cac act gtg atg gcc cta atg gct tcc ctg gat gca gag aag 340
 Cys Asn His Thr Val Met Ala Leu Met Ala Ser Leu Asp Ala Glu Lys
 95 100 105

gcc caa gga caa aag aaa gtg gag gag ctt gag gga gag atc act aca 388
 Ala Gln Gly Gln Lys Lys Val Glu Glu Leu Glu Gly Glu Ile Thr Thr
 110 115 120

tta aac cat aag ctt cag gac gcg tct gca gag gtg gag cga ctg aga 436
 Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu Val Glu Arg Leu Arg
 125 130 135

aga gaa aac cag gtc tta agc gtg aga atc gcg gac aag aag tac tac 484
 Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr
 140 145 150

ccc agc tcc cag gac tcc agc tcc gct gcg gcg ccc cag ctg ctg att 532
 Pro Ser Ser Gln Asp Ser Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile
 155 160 165 170

gtg ctg ctg ggc ctc agc gct ctg ctg cag tgagatccca ggaagctggc 582
 Val Leu Leu Gly Leu Ser Ala Leu Leu Gln
 175 180

acatcttgga aggtccgtcc tgctcggctt ttcgcttgaa cattcccttg atctcatcag 642

ttctgagcgg gtcattggggc aacacggtta gcgggggagag cacggggtag ccggagaagg 702

gcctctggag caggtctgga ggggccatgg ggcagtcctg ggtgtgggga cacagtcggg 762

ttgacctcagg gctgtctccc tccagagcct ccctccggac aatgagtccc ccctcttgct 822

tcccaccctg agattgggca tggggtgcgg tgtggggggc atgtgctgcc tgttgttatg 882

gggttttttt gcgggggggg ttgctttttt ctgggggtctt tgagctccaa aaaaataaac 942

acttcctttg agggagagca caccttaaaa aaaaaaaaaa aaaaaaaaaa aaaaaattc 1002

gggcgggccgc ca 1014

<210> 17
 <211> 379
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Nucleotide
 sequence coding for L chain V region version a of
 humanized anti-HM 1.24 antibody

<220>
 <221> CDS
 <222> (1)..(378)

<220>
 <221> sig_peptide
 <222> (1)..(57)

<220>
 <221> mat_peptide
 <222> (58)..(378)

<400> 17
 atg gga tgg agc tgt atc atc ctc tcc ttg gta gca aca gct aca ggt 48
 Met Gly Trp Ser Cys Ile Ile Leu Ser Leu Val Ala Thr Ala Thr Gly
 -15 -10 -5

gtc cac tcc gac atc cag atg acc cag agc cca agc agc ctg agc gcc 96
 Val His Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 -1 1 5 10

agc gtg ggt gac aga gtg acc atc acc tgt aag gct agt cag gat gtg 144
 Ser Val Gly Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Val
 15 20 25

aat act gct gta gcc tgg tac cag cag aag cca gga aag gct cca aag 192
 Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
 30 35 40 45

ctg ctg atc tac tcg gca tcc aac cgg tac act ggt gtg cca agc aga 240
 Leu Leu Ile Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Ser Arg
 50 55 60

ttc agc ggt agc ggt agc ggt acc gac ttc acc ttc acc atc agc agc 288
 Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser
 65 70 75

ctc cag cca gag gac atc gct acc tac tac tgc cag caa cat tat agt 336
 Leu Gln Pro Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln His Tyr Ser
 80 85 90

act cca ttc acg ttc ggc caa ggg acc aag gtg gaa atc aaa c 379
 Thr Pro Phe Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 95 100 105

<210> 18
 <211> 418
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Nucleotide
 sequence coding for H chain V region version r of
 humanized anti-HM 1.24 antibody

<220>
 <221> CDS
 <222> (1)..(417)

<220>
 <221> sig_peptide
 <222> (1)..(57)

<220>
 <221> mat_peptide
 <222> (58)..(417)

<400> 18
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 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
 -15 -10 -5

gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 -1 1 5 10

cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144
 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 15 20 25

act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt 192
 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 30 35 40 45

gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt 240
 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
 50 55 60

cag aag ttc aag ggc aga gtc acc atg acc gca gac aag tcc acg agc 288
 Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Lys Ser Thr Ser
 65 70 75

aca gcc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg 336
 Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 80 85 90

tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac 384
 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
 95 100 105

tgg ggg caa ggg acc acg gtc acc gtc tcc tca g 418
 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 110 115 120

<210> 19
 <211> 418
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Nucleotide
 sequence coding for H chain V region version s of
 humanized anti-HM 1.24 antibody

<220>
 <221> CDS
 <222> (1)..(417)

<220>
 <221> sig_peptide
 <222> (1)..(57)

<220>
 <221> mat_peptide
 <222> (58)..(417)

<400> 19
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 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
 -15 -10 -5

gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 -1 1 5 10

cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144
 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 15 20 25

act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt 192
 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 30 35 40 45

gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt 240
 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
 50 55 60

cag aag ttc aag ggc aga gtc acc atc acc gca gac aag tcc acg agc 288
 Gln Lys Phe Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser
 65 70 75

aca gcc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg 336
 Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
 80 85 90

tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac 384
 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
 95 100 105

tgg ggg caa ggg acc acg gtc acc gtc tcc tca g
 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 110 115 120

418

<210> 20
 <211> 132
 <212> PRT
 <213> Homo sapiens

<220>
 <223> Amino acid sequence of soluble HM 1.24 antigenic protein

<400> 20
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 1 5 10 15
 Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly
 20 25 30
 Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met
 35 40 45
 Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys
 50 55 60
 Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln
 65 70 75 80
 Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu
 85 90 95
 Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser
 100 105 110
 Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser
 115 120 125
 Ala Leu Leu Gln
 130

<210> 21
 <211> 161
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Amino acid sequence of a fusion protein comprising leader sequence, FLAG peptide and soluble HM 1.24 antigenic protein

<400> 21
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
 1 5 10 15

Val His Ser Asp Tyr Lys Asp Asp Asp Asp Lys Gly Thr Asn Ser Glu
 20 25 30
 Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg Asn Val Thr
 35 40 45
 His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly Phe Gln Asp
 50 55 60
 Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met Ala Leu Met
 65 70 75 80
 Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys Val Glu Glu
 85 90 95
 Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln Asp Ala Ser
 100 105 110
 Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu Ser Val Arg
 115 120 125
 Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser Ser Ser Ala
 130 135 140
 Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser Ala Leu Leu
 145 150 155 160

Gln

<210> 22
 <211> 143
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Amino acid sequence
 of a fusion protein comprising HA peptide and soluble
 HM 1.24 antigenic protein

<400> 22
 Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Thr Asn Ser Glu Ala Cys
 1 5 10 15
 Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg Asn Val Thr His Leu
 20 25 30
 Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu
 35 40 45
 Ala Gln Ala Ala Thr Cys Asn His Thr Val Met Ala Leu Met Ala Ser
 50 55 60
 Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys Val Glu Glu Leu Glu
 65 70 75 80
 Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu
 85 90 95

Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala
 100 105 110

Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser Ser Ser Ala Ala Ala
 115 120 125

Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser Ala Leu Leu Gln
 130 135 140

<210> 23

<211> 126

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence
 of a fusion protein comprising HA peptide and
 C-terminal-lacking soluble HM 1.24 antigenic protein

<400> 23

Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Thr Asn Ser Glu Ala Cys
 1 5 10 15

Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg Asn Val Thr His Leu
 20 25 30

Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu
 35 40 45

Ala Gln Ala Ala Thr Cys Asn His Thr Val Met Ala Leu Met Ala Ser
 50 55 60

Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys Val Glu Glu Leu Glu
 65 70 75 80

Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu
 85 90 95

Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala
 100 105 110

Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser Ser Ser Ala
 115 120 125

<210> 24

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid
 sequence of HA peptide

<400> 24

Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
 1 5

<210> 25

<211> 147

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence
 of CG M/HA-HM164

<400> 25

Met Arg Val Pro Ala Gln Leu Leu Gly Leu Leu Leu Trp Leu Pro
 1 5 10 15

Gly Ala Arg Cys Ala Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Thr
 20 25 30

Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg
 35 40 45

Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly
 50 55 60

Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met
 65 70 75 80

Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys
 85 90 95

Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln
 100 105 110

Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu
 115 120 125

Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser
 130 135 140

Ser Ser Ala
 145

<210> 26

<211> 180

<212> PRT

<213> Homo sapiens

<220>

<223> Amino acid sequence of humam HM 1.24 antigenic protein
 expressed on cell membrane

<400> 26

Met Ala Ser Thr Ser Tyr Asp Tyr Cys Arg Val Pro Met Glu Asp Gly
 1 5 10 15

Asp Lys Arg Cys Lys Leu Leu Leu Gly Ile Gly Ile Leu Val Leu Leu
 20 25 30
 Ile Ile Val Ile Leu Gly Val Pro Leu Ile Ile Phe Thr Ile Lys Ala
 35 40 45
 Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg
 50 55 60
 Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly
 65 70 75 80
 Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met
 85 90 95
 Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys
 100 105 110
 Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln
 115 120 125
 Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu
 130 135 140
 Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser
 145 150 155 160
 Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser
 165 170 175
 Ala Leu Leu Gln
 180

<210> 27
 <211> 126
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Amino acid
 sequence of L chain V region version a of
 humanized anti-HM 1.24 antibody

<400> 27
 Met Gly Trp Ser Cys Ile Ile Leu Ser Leu Val Ala Thr Ala Thr Gly
 -15 -10 -5
 Val His Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 -1 1 5 10
 Ser Val Gly Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Val
 15 20 25
 Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
 30 35 40 45

18

Leu Leu Ile Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Ser Arg
50 55 60
Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser
65 70 75
Leu Gln Pro Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln His Tyr Ser
80 85 90
Thr Pro Phe Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
95 100 105

<210> 28
<211> 139
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Amino acid
sequence of H chain V region version r of
humanized anti-HM 1.24 antibody

<400> 28
Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
-15 -10 -5
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
-1 1 5 10
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
15 20 25
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
30 35 40 45
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
50 55 60
Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Lys Ser Thr Ser
65 70 75
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
80 85 90
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
95 100 105
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
110 115 120

<210> 29
<211> 139
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid
sequence of H chain V region version s of
humanized anti-HM 1.24 antibody

<400> 29

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Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
              -15              -10              -5

Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
      -1  1              5              10

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
  15              20              25

Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
  30              35              40              45

Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
              50              55              60

Gln Lys Phe Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser
              65              70              75

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
      80              85              90

Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
  95              100              105

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
110              115              120

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<210> 30

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
6xHis tag

<400> 30

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His His His His His His
  1              5

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<210> 31

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
10xHis tag

<400> 31

His	His	His	His	His	His	His	His	His	His	His
1				5						10